

What is claimed is:

1. A respiratory mask that comprises:

(a) mask body that lacks a rigid insert, that is non-elastomeric, and that is adapted for fitting over a person's nose and mouth, the mask body having a nose portion, a chin portion, first and second cheek portions, and an axis that extends from the nose portion to the chin portion, the mask body being constructed to deform such that the first and second cheek portions can move towards each other about the axis when the mask body is held stationary and a force is exerted on the nose and chin portions; and

(b) a harness that assists in supporting the mask on a wearer's face.

2. The respiratory mask of claim 1, further comprising:

(c) one or more filter cartridges that are attached to the mask body.

3. The respiratory mask of claim 2, wherein the mask includes first and second filter cartridges that are secured to the first and second cheek portions, respectively.

4. The respiratory mask of claim 3, further comprising an exhalation valve that is located at a central portion of the mask body, and wherein the harness includes a carriage and at least one strap, the carriage covering the exhalation valve and being secured to the mask body at the central portion.

5. The respiratory mask of claim 1, wherein the first and second cheek portions are capable of deflecting inward during normal jaw movement of the wearer.

6. The respiratory mask of claim 1, wherein the harness includes a carriage and at least one strap, the strap(s) being joined to the carriage, and the carriage being centrally mounted to the mask body, the first and second cheek portions of the mask body being capable of being deflected inwards toward the respective cheeks on a wearer in response to tension from the strap(s) when the mask is being worn.

7. The respiratory mask of claim 6, further comprising first and second filter cartridges that are secured to the first and second cheek portions of the mask body, wherein the first and second filter cartridges move inwardly with the first and second cheek portions when deflection occurs as a result of a force exerted on the nose and chin portions from tension on the at least one strap when the mask is worn.

8. The respiratory mask of claim 1, wherein the mask body further includes a soft deformable material as a face seal, which soft deformable material is secured to a perimeter of the mask body to improve fit of the mask body to a person's face.

9. The respiratory mask of claim 8, wherein the mask body has a foam material secured to the interior of the mask body at the nose portion.

10. The respiratory mask of claim 1, wherein the mask body has a mechanism that allows for attachment of a powered air supply source.

11. The respiratory mask of claim 1, wherein the mask body has an elongation at its elastic limit of less than about 5 percent.

12. The respiratory mask of claim 1, wherein the mask body has an elongation at its elastic limit of less than about 2 percent.

13. The respiratory mask of claim 1, wherein the mask body has an elongation at its elastic limit of less than about 1 percent.

14. The respiratory mask of claim 1, wherein the material from which the mask body is made has a flexural modulus greater than 50 MPa.

15. The respiratory mask of claim 14, wherein the material from which the mask body is made has a flexural modulus greater than 500 MPa.

16. The respiratory mask of claim 15, wherein the material from which the mask body is made has a flexural modulus greater than 1000 MPa.

17. The respiratory mask of claim 16, wherein the material from which the mask body is made has a flexural modulus less than about 4000 MPa.

18. The respiratory mask of claim 6, wherein the strap(s) is capable of applying a force of about 10 to 20 N when the mask is fitted on a wearer's face.

19. The respiratory mask of claim 1, wherein the mask body is capable of exhibiting a deflection of at least 5 mm with an average force of 5 N is applied to the mask body in accordance with the mask body deflection test.

20. The respiratory mask of claim 1, wherein the mask body is capable of exhibiting a deflection of at least 10 mm with an average force of 5 N is applied to the mask body in accordance with the mask body deflection test.

21. The respiratory mask of claim 1, wherein the mask body in naked form does not weigh more than about 35 grams.

22. The respiratory mask of claim 1, wherein the mask body in naked form does not weigh more than 30 grams.

23. The respiratory mask of claim 1, wherein the mask body in naked form does not weigh more than 25 grams.

24. The respiratory mask of claim 23, wherein the mask body in naked form does not weigh more than 10 grams.

25. The respiratory mask of claim 1, wherein the mask body has an average thickness less than about 2 mm.

26. The respiratory mask of claim 1, wherein the mask body has an average thickness less than 1.6 mm.

27. The respiratory mask of claim 1, wherein the mask body has an average thickness less than 1.2 mm.

28. The respiratory mask of claim 27, wherein the mask body has an average thickness greater than about 0.5 mm.

29. The respiratory mask of claim 1, wherein the mask body is constructed from a thermoformed plastic.

30. The respiratory mask of claim 29, wherein the thermoformed plastic comprises polypropylene.

5 31. The respiratory mask of claim 1, wherein the mask body in naked form weighs less than 35 g, has an average thickness less than 2 mm, and has a flexural modulus greater than 500 MPa.

32. A mask body that lacks a rigid insert, that is non-elastomeric, and that is adapted for fitting over a person's nose and mouth, the mask body comprising a nose
10 portion, a chin portion, first and second cheek portions, and an axis that extends from the nose portion to the chin portion, the mask body being constructed to deform such that the first and second cheek portions can move towards each other about the axis when a force is exerted.

33. A method of making a respiratory mask, which method comprises:
15 forming a mask body not weighing more than 35 g from a non-elastomeric plastic material that has a flexural modulus of greater than 500 MPa, the mask body being formed to a cup shape that has an average thickness less than 2 mm and that is adapted for fitting over a person's nose and mouth without inclusion of a rigid insert but with an integrally-formed, a nose portion, a chin portion, central portion, and first and second cheek portions;
20 and securing a harness to the mask body.

34. The method of claim 32, wherein the mask body exhibits a deflection of at least 5 mm when a force of 5 N is applied to the mask body when tested in accordance with the Mask Body Deflection Test.